

Operation ICE Bridge Meeting

DISCUSSION OF SCIENCE OBJECTIVES

DECEMBER 14, 2009

12:15 – 13:45 PM, FALL AGU

SEELYE MARTIN, LORA KOENIG





Agenda



- 1) Briefing on lines flown to date;
- 2) Presentation of data gathered to date;
- 3) Proposed flight lines for Greenland 2010;
- 4) Request for your input on flight lines.



Operation ICE Bridge-Aircraft



DC-8



P-3



Kenn Borek Basler BT-57





ICE BRIDGE CAMPAIGNS IN 2009



GREENLAND (April-May)

South East ALASKA (see poster by Chris Larsen, Tuesday afternoon, C23C-0508, Monitoring and Quantifying Glacier Dynamics III Posters.)

WEST ANTARCTICA/PENINSULA

ICE CAP (EAST ANTARCTICA, IN PROGRESS)



ANTARCTIC ICE BRIDGE Instrumentation



Summary: 11 instruments total, 7-primary, 4-experiments of opportunity

DC-8 Primary Instruments:

ATM: Airborne Topographic Mapper (WFF)

LVIS: Laser Vegetation Imaging Sensor (GSFC)

MCoRDS: Multichannel Coherent Radar Depth Sounder (Kansas)

KU Snow Radar: Sea ice snow depth radar (Kansas)

Ku-Band radar: CryoSat simulator (Kansas)

Gravimeter: (Lamont-Doherty Earth Observatory)

DMS: Digital Mapping System (3-D mapping camera) (John Arvesen)

Experiments of Opportunity (atmospheric trace gases):

WAS: Whole Air Sampler (UC Irvine)

DACOM: Differential Absorption CO Measurement (LaRC)

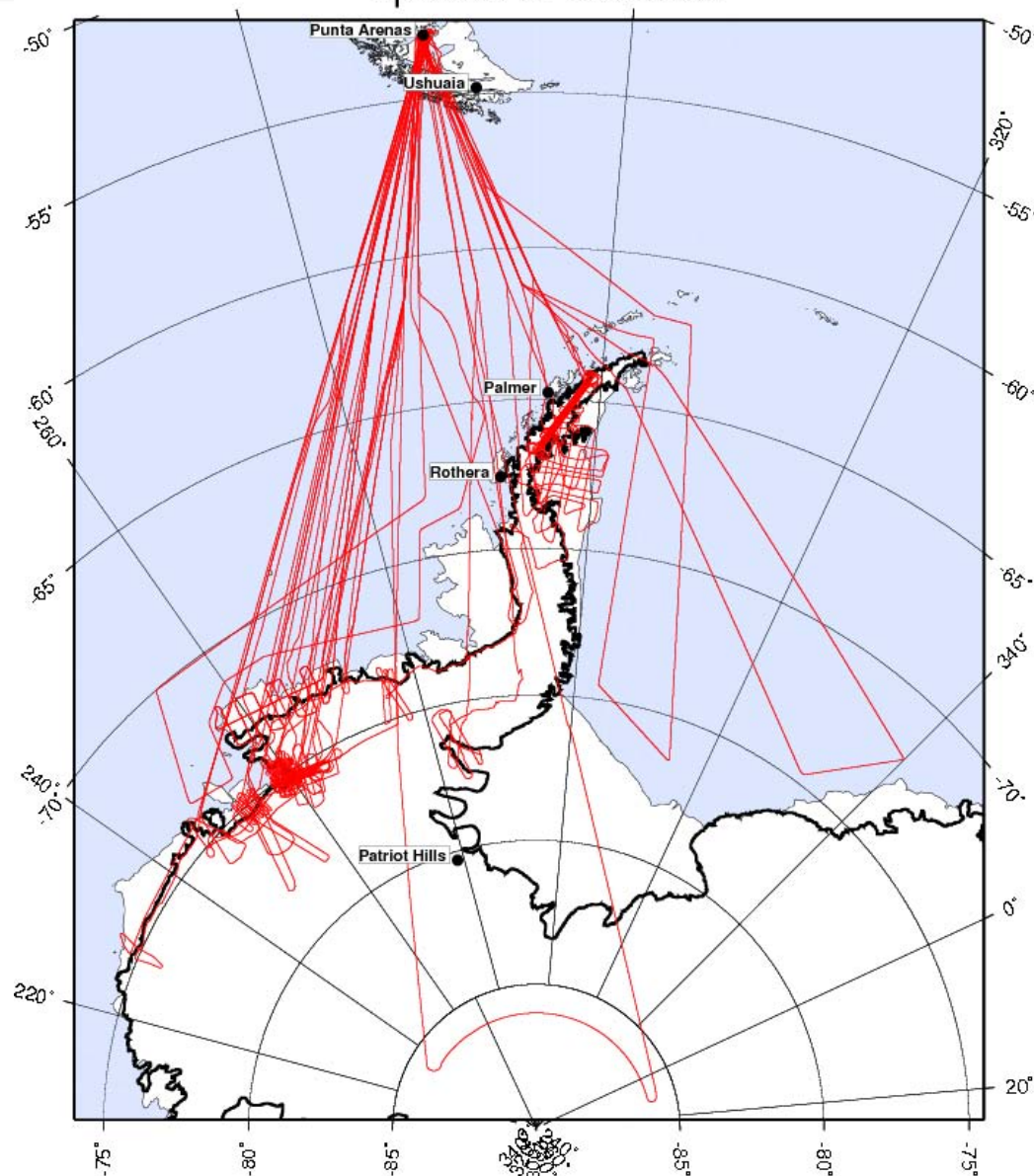
DLH: Diode Laser Hydrometer (LaRC)

AVOCET: Atmospheric Vertical Observations of CO₂ in the Earth's
Troposphere (LaRC)



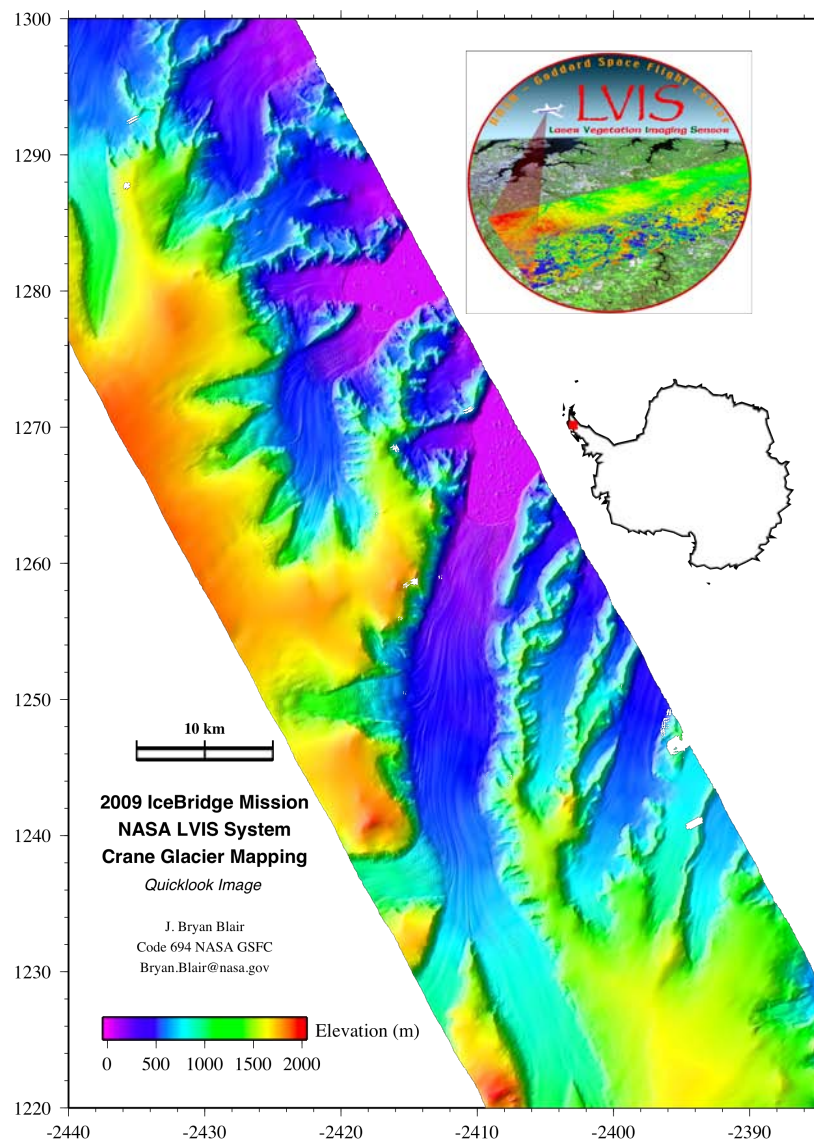
Fall 2009 IceBridge Missions Flown

Updated 19 November

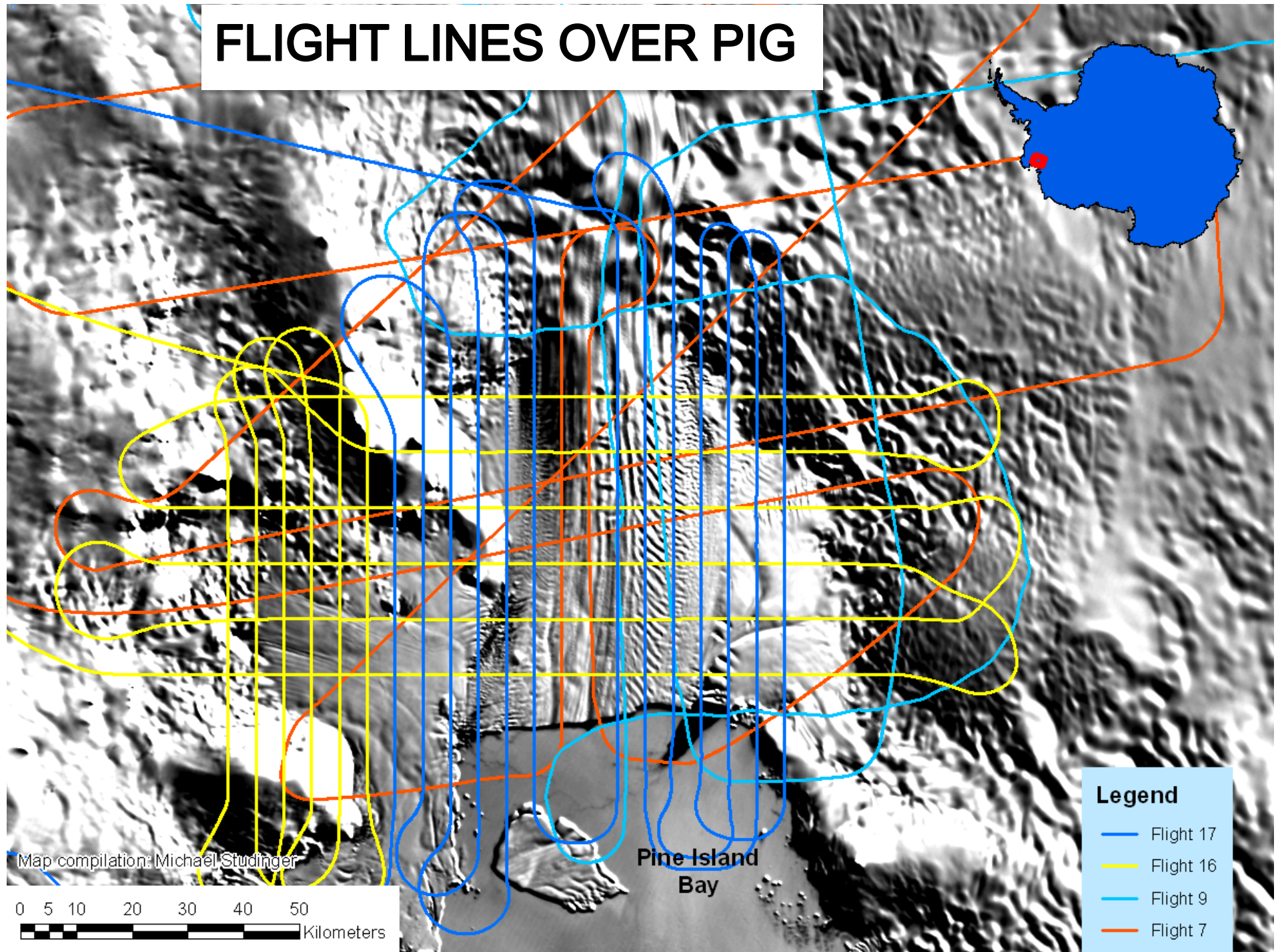


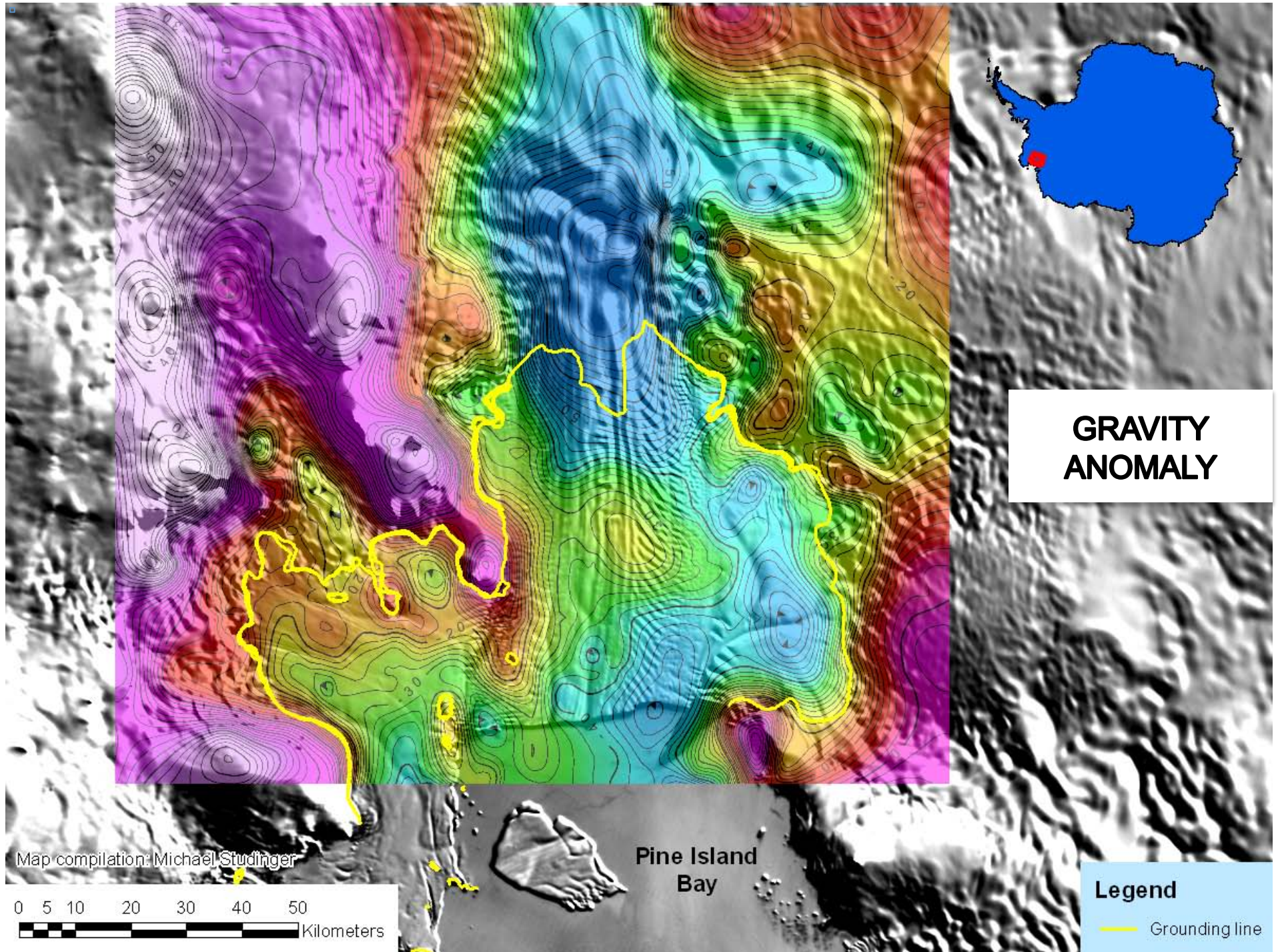


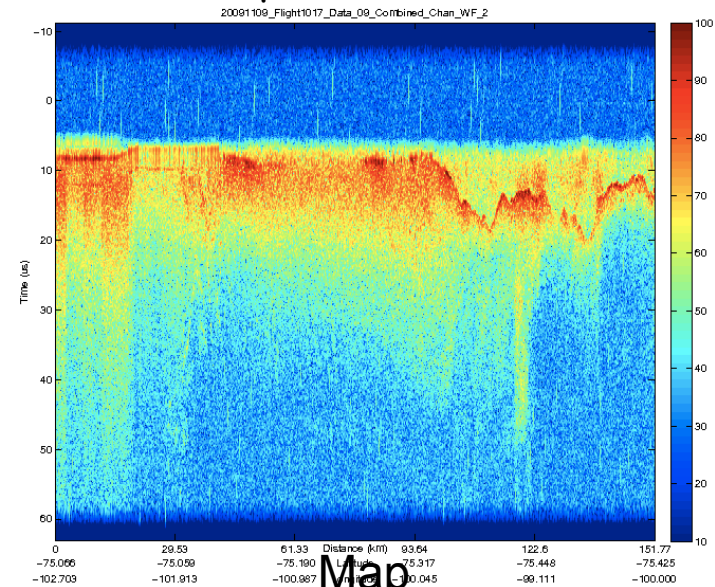
Preliminary analysis of LVIS flight lines: Crane Glacier



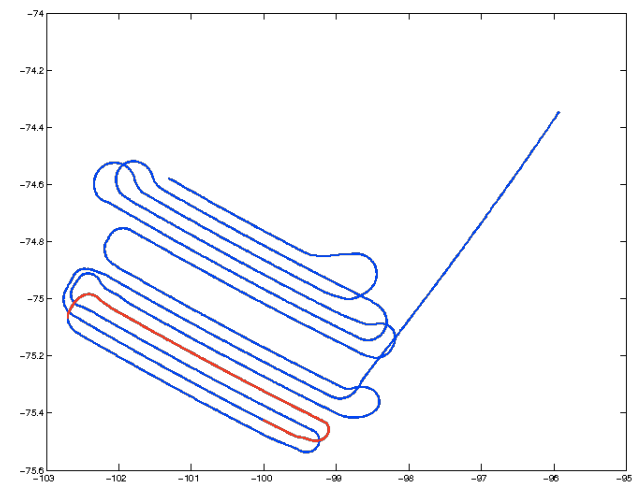
FLIGHT LINES OVER PIG







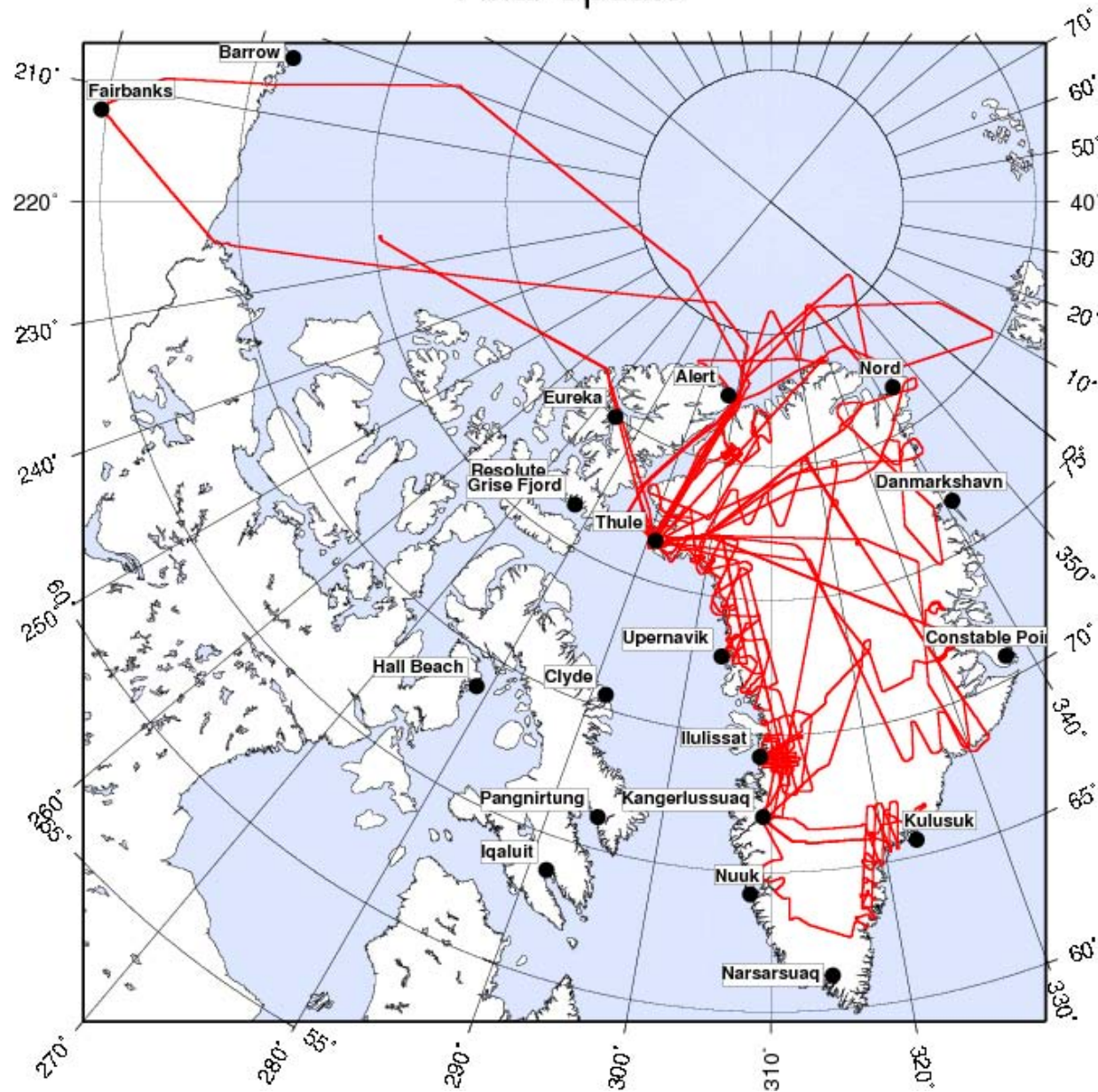
Map





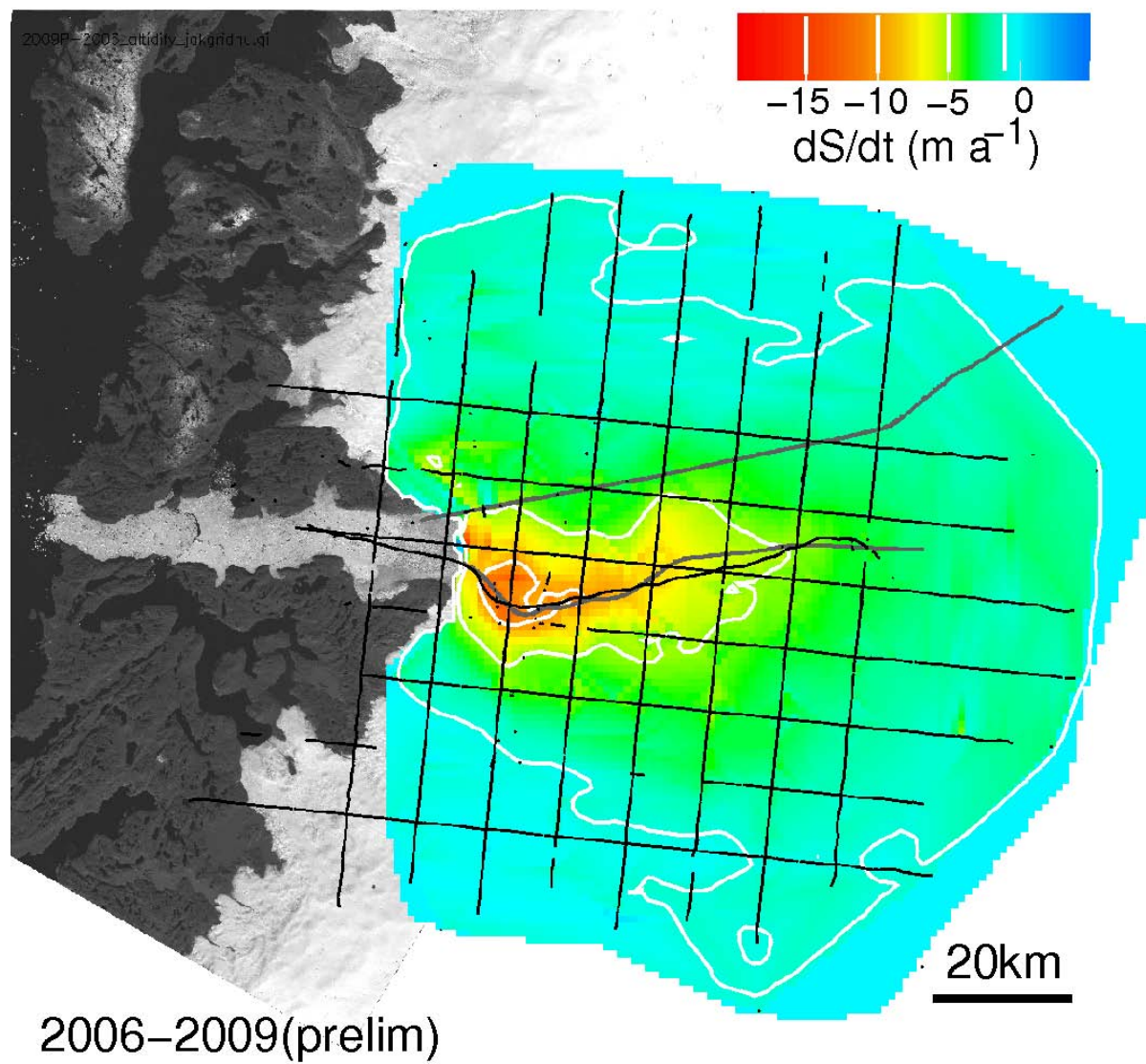
2009 Spring Arctic Missions Flown

Final Update





ATM Survey Comparison for Jacobshavn





Proposed flight lines for Greenland 2010



We expect to have two aircraft, within the period March-April-May.

At the request of the numerical modeling community, one goal will be to map the bedrock topography at a 10-km spacing in the interior, and a 2-km spacing near the coast. This program would probably take three years to complete.

Continue overflights of previously taken ATM lines;

Carry out sea ice program, with ATM, snow radar;

High altitude LVIS surveys;

Fly a dense gravity grid over the Petermann Glacier ice tongue for comparison with potential Autosub measurements.





Request for Contributions from Science Community



Are there active field sites that you wish to have overflown?

Are there specific areas that you would like overflown?

Discussion

Tom Wagner: "Ice Bridge is shaping up to be what will perhaps be one of the most important data gathering efforts for Cryospheric sciences for decades to come. "